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ABSTRACT

Electronic networking is communication between two or more people that involves one or more telecommunications media. There is electronic networking software available for most computers, including IBM, Apple, and Radio Shack personal computers. Depending upon the sophistication of the hardware and software used, individuals and groups can conference (or "talk") with one another, leave messages, post messages that the entire group can read, send a confidential letter from one member to another, instruct the computer to regularly remind other members of the group about some item, and a variety of other applications. College and university faculty will find electronic networking a valuable addition to the types of professional linkage to which they are already accustomed: articles, papers, newsletters, memos, and messages. Electronic networking can also be utilized for instructional purposes, dialog among members of a professional society, and for the development of jointly-authored articles. As faculty and professional staff at colleges and universities become more familiar with the operation of computers and computer terminals, and as they become more knowledgeable in the use of electronic networking on campus, their desire to communicate with colleagues in other institutions will grow. As a result, newer, stronger, and more frequent exchanges of ideas, materials, and news will facilitate the interchange of ideas among the professoriate, thereby increasing the quality of teaching, learning, and research in higher education. (JB)

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ELECTRONIC NETWORKING AS AN AVENUE OF ENHANCED PROFESSIONAL INTERCHANGE

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What is an electronic network? How can it be applied most effectively to instructional, research and service functions of higher education? What are the criteria for the selection and adoption of networking software and hardware? Where can the most recent and beneficial information on electronic networking be found? These and other questions are the focus of the recently formed Electronic Networking (EN) Committee of the American Educational Research Association, Postsecondary Division (AERA-J). This author serves as chair of the EN Committee, and this paper is intended to report the basic information on establishing, using and benefiting from electronic networks identified by the Committee and to serve as a stimulus for discussion of the consequences for higher education and the professoriate of the general movement from a print to an electronic culture .

Electronic networking is communication between two or more people that involves one or more telecommunications media. In this sense, one medium of electronic networking used everyday is voice communication over the telephone. Today, we can also communicate over the telephone using computers as well. Such an electronic networking consists of a group of people in variety of locations. One of these people establishes and maintains his or her computer as the "host" computer. This computer may be a mainframe, a small office computer or a micro. There is electronic networking software available for most computers, including

the popular IBM, Apple, and Radio Shack personal computers. Other individuals in the networking group communicate with each other through the host computer.

To communicate through the network, an individual turns on his or her computer from most any location, loads the appropriate communications program, turns on a telephone modem (connecting the computer to the phone lines), and then dials the telephone number of the host computer. When the host computer answers, the network member identifies him or herself and begins to communicate with other members of the network group. Depending upon the sophistication of the hardware and software used, this group can conference (or "talk") with one another, leave messages, post messages that the entire group can read, send a confidential letter from one member to another, instruct the computer to regularly remind other members of the group about some item, and a variety of other applications.

There are also commercial services which provide the host computer for electronic networking. Compuserve and The Source are two such commercial electronic services which provide subscribers the option of conferring with other members on topics of common interest. Both The Source and Compuserve offer international access to their systems. Table 1 on the following page lists those countries currently served by The Source and is illustrative of the potential for international communication through these networks. Through commercial electronic networks, there exists the potential for increased professional interchange; through locally established area networks, professors and researchers can communicate directly, without restrictions of membership and user fees. To understand the advantages and limitations of local area networks

Table 1. Foreign Access to The Source *

Argentina	French Antilles	Portugal
Australia	Germany (West)	Puerto Rico
Austria	Hong Kong	Qatar
Bahamas	Hungary	Saudi Arabia
Bahrain	Ireland	Singapore
Barbados	Israel	South Africa
Belgium	Italy	Spain
Bermuda	Japan	Sweden
Brazil	Korea	Switzerland
Canada	Kuwait	Taiwan
Chile	Luxembourg	Thailand
Columbia	Mexico	United Arab Emirates
Denmark	The Netherlands	United Kingdom
Dominican Republic	New Zealand	United States
Finland	Norway	Virgin Islands
France	Philippines	

Note. From: The Source Manual: A Guide to Services for Members. McLean, VA: Source Telecomputing Corp., 1984.

and of commercially sponsored networks, it is helpful to compare these forms of communication and interchange with those that members of the professoriate traditionally rely upon.

After the second World War, the professoriate gained dominance over the 3A

curriculum in higher education through scholarly associations (Jencks and Riesman, 1968). Disciplinary associations provided avenues for faculty to exchange views regarding quality, structure and content of college programs. The associations themselves often exerted a strong role in establishing standards by which university departments and programs might be judged by accrediting bodies. Scholarly journals, often sponsored by associations provided a vehicle for the exchange of research ideas, information and activities. Annual conventions and conferences of the associations became the basis for formal and informal networks of specialists within a discipline. The print culture was reinforced through these professional societies and associations. Papers were read at the meetings; activities of the associations were described in newsletters; research was printed in journals. Faculty promotion and tenure decisions became based on the print culture as they were evaluated by their peers on the extent of their publications. The strength of the disciplines, of the professoriate and of professional interchange relied heavily upon the printed page as a medium of communication.

During the 1970's and 1980's the power of the professoriate diminished considerably. Reduced resources of colleges and universities forced administrators to review academic programs and to judge curriculum, research and service activities on their economic merits to the institution rather than intrinsic merits to the advancement of the discipline. Reduced enrollments in some institutions further inhibited the breath and depth of curricular offerings within the disciplines. Reduced resources and the increased cost of travel restricted faculty participation in regional, national and international

meetings. Increased costs of printing and materials inhibited the growth in professional journals and newsletters, forcing editors to place limits on page length and number of articles per issue. Stagnate or reduced budgets of libraries limited their ability to purchase journals and new books, and book sales and subscription rolls of the journals fell accordingly. These events of the past two decades have caused a major contraction in the extent and frequency of professional interchange between faculty.

The reduction of avenues of professional interchange has created a sense of place-bound isolation amongst the much of the professoriate and a readiness on the part of many faculty to seek new forms of communication with their colleagues. A most likely initial objective of faculty in the use of a new form of communication might be to strengthen the types of professional linkages with which they are already most accustomed: articles, papers, newsletters, memos and messages. After that objective has been met, then perhaps some will begin to examine their reliance on the print culture and begin to experiment with new applications of electronic networking. Nevertheless, the use of electronic networking will remain only ancillary to print media so long as the reward structure of the professoriate is so firmly married to the print culture. Given this limitation, an electronic culture will emerge and significantly impact the professional interchange of faculty on campuses throughout the world. The learned use of the telephone as a electronic medium is exemplary of this transition to electronic networking.

When we first used the telephone to communicate, we patterned our usage after informal face-to-face voice interchanges. The more we learned how to use

the phone, the more we began to use it to replace letters, memos and notices. Now, we are beginning to use this form of electronic networking to convene twenty or a hundred people in conference sessions at professional meetings. Six sessions at the last AERA-J/ASHE Fall Conference linked groups located from New York to Wyoming by phone to symposium sessions based in San Francisco. Audio (telephone) conferencing, as a form of electronic networking, is now being used widely in the United States for credit and non-credit undergraduate, graduate, professional and continuing education (Lewis, 1983). It holds particular strength as a new form of inservice education and professional development (Ratcliff, 1983). As we learn the applications of a telecommunications medium, we begin to move away from the model after which it was patterned to a wider range of uses, not all of which could be readily achieved through any other means (Ratcliff, 1984).

If we already use networking through conferences and other professional associations and through informal and formal written and telephone conversations, why do we need electronic communication using computers? Like most innovations, proponents try to fashion the new medium after old ones with which we are familiar. The first horseless carriage resembled greatly the horse drawn carriage to a far greater degree than today's Corvette or Kenworth truck. Likewise, proponents of innovations tend to couch their promotions in language which compares the new technology with the old (de Sola Pool, 1982). So it is not surprising that electronic mail, for example, is being marketed commercially as a faster, more efficient and more reliable way to getting a letter from here to there.

Already a number of computer networks exist to serve specific purposes. For example, the EDLINE network serves as a vehicle for immediate and on-going dialog among members of the American Association of School Administrators, the Association of Educational Communication and Technology, and the National School Public Relations Association. A major objective of EDLINE is to provide a means for immediate and continuing dialogue on educational issues of interest to these organizations. Likewise, Special Net is sponsored by the National Association of State Directors of Special Education for the purpose of sharing resources and information among the many and varied professionals throughout the United States who serve special needs populations. Pierce (1984) describes and contrasts a number of these electronic networks, their purposes and their target audiences. Pierce and Cooley (1985) recently has demonstrated the use of an electronic network for the development of a jointly authored article; the two authors were separated by half a continent. The article illustrated the uses of the computer networking on The Forum - an electronic networking group of the American Educational Research Association on the Compuserve system.

When two researchers join together to interactively generate a journal article, it is itself is an act of translating the products of the emerging electronic culture for the traditional consumers of print culture. When two faculty members at diverse locations across the country or across the world join to electronically author an article, other members of the electronic network can contribute editorial comments, new drafts of the document, additional bibliographic resources, etc. The print culture process of communication is quite linear when compared to the dynamics of electronic networking. In the

print culture, the author first outlines the flow of thoughts to occur in the article; that outline might be modified by the comments of the coauthors. Next, a draft of the paper is developed; each author preparing a section. After an initial draft, the paper may then be shared with the various authors for editing, embellishment and refinement. A final draft is mailed to a journal editor; the journal editor mails copies to the editorial review board for comments and judgment about publication. If the article is accepted for publication, substantial revision of the text may be requested by members of the review board. These suggestions are translated from review forms to a letter to the authors from the editor. If the paper is rejected, comments and feedback may or may not be provided to the authors. If the paper is accepted for publication, the editor will mail the authors galley proofs of the typesetting of the article as a form of final editorial review.

This print culture process of authoring, reviewing and editing may consume six months, a year or more. Only then do the thoughts of the authors reach the readers eyes. Only then may a reader write a letter to the editor commenting upon the ideas or research presented in the article. Only then may reader put into practice those ideas and findings which are reported in the research. Only then may the discipline in which the research is generated begin to advance. In an electronic network, the processes of authorship, of editorial review and refinement, of dissemination and of reaction and utilitization may occur within minutes of one another. The process of conveying an idea takes on new dimensions.

It is only after a technology begins to grow in usage than people begin to

speculate and to experiment, creating new forms of communication. It was only after widespread car ownership and the development of a rudimentary road system that people began to think of the summer vacation trip in the car as a form of recreation. Likewise, as faculty and professional staff at colleges and universities become more familiar with the operation of computer and computer terminals, and as they become more knowledgeable in the use of electronic networking on campus, the desire to communicate with their colleagues between institutions will grow. As a result, newer stronger, more frequent exchanges of ideas, materials, and news will strengthen the interchange of ideas among the professoriate, thereby increasing the quality of teaching, learning and research in higher education.

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